Amendments to the Claims

1. (Currently Amended) A method of processing a received optical signal from an optic fiber, the received optical signal carrying ~~that carries~~ user information, the method comprising:

splitting by way of a splitter the received optical signal based on polarization into a first optical signal and a second optical signal;

converting the first optical signal into a corresponding first electrical signal;

converting the second optical signal into a corresponding second electrical signal;

applying radio frequency detection to the first electrical signal to generate a third electrical signal;

applying radio frequency detection to the second electrical signal to generate a fourth electrical signal; [[and]]

combining the third electrical signal and the fourth electrical signal to form a fifth electrical signal that carries the user information;

low-pass-filtering the fifth electrical signal to generate a filtered fifth electrical signal;

amplifying the filtered fifth electrical signal to generate an amplified fifth electrical signal; and

processing the amplified fifth electrical signal to align polarizations of the received optical signal with a principal axis of the splitter;

wherein the first optical signal and the second optical signal are aligned with the principal states of polarization of [[an]] the optic fiber.

2. (Canceled)

3. (Canceled)

4. (Currently Amended) The method of claim [[3]] 1 wherein ~~aligning the polarizations of the received optical signal~~ processing the amplified fifth electrical signal is performed by way of a control algorithm to generate ~~is based on~~ control instructions ~~from a feedback loop that processes the fifth electrical signal~~ to align the polarizations of the received

optical signal with the principal axis of the splitter.

5. (Original) The method of claim 1 wherein applying radio frequency detection to the first electrical signal to generate the third electrical signal further comprises:

generating a sixth electrical signal; and

mixing the sixth electrical signal with the first electrical signal.

6. (Original) The method of claim 5 wherein applying radio frequency detection to the second electrical signal to generate the fourth electrical signal further comprises:

shifting a phase of the sixth electrical signal; and

mixing the sixth electrical signal with the second electrical signal.

7. (Original) The method of claim 1 wherein applying radio frequency detection to the first electrical signal to generate the third electrical signal further comprises:

applying a bandpass filter to the first electrical signal; and

applying a square law detector to the first electrical signal.

8. (Original) The method of claim 1 wherein applying radio frequency detection to the second electrical signal to generate the fourth electrical signal further comprises:

applying a bandpass filter to the second electrical signal; and

applying a square law detector to the second electrical signal.

9. (Original) The method of claim 1 wherein the received optical signal is sub-carrier modulated.

10. (Currently Amended) A receiver system for processing a received optical signal from an optic fiber, the received optical signal carrying ~~that carries~~ user information, the receiver system comprising:

a splitter configured to split the received optical signal based on polarization into a first optical signal and a second optical signal;

a polarization controller connected to the splitter and configured to align polarizations of

the received optical signal with a principal axis of the splitter;

a first converter connected to the splitter and configured to convert the first optical signal into a corresponding first electrical signal;

a second converter connected to the splitter and configured to convert the second optical signal into a corresponding second electrical signal; [[and]]

a detection system connected to the first converter and the second converter and configured to apply radio frequency detection to the first electrical signal to generate a third electrical signal, apply radio frequency detection to the second electrical signal to generate a fourth electrical signal, and combine the third electrical signal and the fourth electrical signal to form a fifth electrical signal that carries the user information; and

a feedback loop coupled with the detection system to low-pass-filter the fifth electrical signal to generate a filtered fifth electrical signal, amplify the filtered fifth electrical signal to generate an amplified fifth electrical signal, and process the amplified fifth electrical signal to control the polarization controller;

wherein the first optical signal and the second optical signal are aligned with the principal states of polarization of [[an]] the optic fiber.

11. (Canceled)

12. (Canceled)

13. (Currently Amended) The receiver system of claim [[12]] 10 wherein the polarization controller is configured to align the polarizations of the received optical signal based on control instructions from a control algorithm of the feedback loop that processes the amplified fifth electrical signal.

14. (Original) The receiver system of claim 10 wherein the detection system is configured to generate a sixth electrical signal and mix the sixth electrical signal with the first electrical signal.

15. (Original) The receiver system of claim 14 wherein the detection system is

configured to shift a phase of the sixth electrical signal and mix the sixth electrical signal with the second electrical signal.

16. (Previously Presented) The receiver system of claim 10 wherein the detection system is configured to apply a bandpass filter to the first electrical signal and apply a square law detector to the first electrical signal.

17. (Previously Presented) The receiver system of claim 10 wherein the detection system is configured to apply a bandpass filter to the second electrical signal and apply a square law detector to the second electrical signal.

18. (Original) The receiver system of claim 10 wherein the received optical signal is sub-carrier modulated.